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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/035,065 | 12/27/2001 | Tadashi Nomura | SIW-026 | 3263 |

959 7590 07/11/2005

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| EXAMINER |
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MARTIN, ANGELA J

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| ART UNIT | PAPER NUMBER |
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1745

DATE MAILED: 07/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/035,065

Applicant(s)

NOMURA ET AL.

Examiner

Angela J. Martin

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office Action is responsive to the Amendment filed on April 15, 2005. The Applicant has amended claims 1, 10, 15; and has added new claim 20. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action.

Accordingly, this action is made final.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 3, 10, 11, 15, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenji, Japanese Pat. No. 2000-223144 (machine translation), in view of Benson, U.S. Pat. No. 4,872,975.

Rejection of claims 1, 3, 10, 11, 15, 20 drawn to a fuel cell system.

Kenji teaches a fuel cell system having a reforming reactor, the system comprising a fuel cell, a reforming reactor, and a drain for condensed water stored in the reforming reactor (abstract). In addition, it teaches a tank provided at the downstream side of the drain, for storing condensed water (Drawing 1). It also teaches a heat exchanger (sect. 0049).

Kenji does not teach a water-collecting portion formed by a plurality of sloped portions and which is provided at the bottom of the reforming reactor, wherein the drain is connected to the water-collecting portion.

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Benson teach a water-collecting portion formed by a plurality of sloped portions wherein a drain is connected to the water-collecting portion.

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert the teachings of Benson into the teachings of Kenji because Benson teaches a container having sloped portions will "enhance drainage" (col. 2, lines 35-36).

3. Claims 4-9, 13, 14, 16-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenji, Japanese Pat. No. 2000-223144 (machine translation), in view of Yargeau, U.S. Pat. 4,120,787 or O'Brien et al., U.S. Pat. No. 6,759,154 B2.

Rejection of claims 4-9, 13, 14, 16-19 drawn to a fuel cell system.

Kenji teaches a fuel cell system as described above.

Kenji does not teach a purifier.

Yargeau teaches a purifier in the fuel cell system to "remove all gaseous forms of impurities from the condensate comprising the fuel cell produced water and those solids which would have a deleterious effect on either the boiler or reformer."

O'Brien et al., teach a purifier "for purifying the condensate to at least partially, or completely, remove unnecessary components to improve its quality and purity."

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert the teachings of Yargeau or O'Brien et al., into the teachings of Kenji because they each teach that it is advantageous to purify the condensate in order to improve its quality.

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4. Claims 10, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenji, Japanese Pat. No. 2000-223144 (machine translation), in view of Borup et al., U.S. Pat. No. 6,162,558.

Rejection of claims 10, 12 drawn to a fuel cell system.

Kenji teaches a fuel cell system as described above.

Kenji does not teach a CO remover.

Borup et al., teach a CO remover (abstract).

Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to insert the teachings of Borup et al., into the teachings of Kenji because Borup teaches that the hydrogen used in a fuel cell can be derived from a reformation of hydrocarbons; the reformat contains high concentrations of carbon monoxide, which can poison the anode catalyst, and therefore the carbon monoxide must be removed or reduced to nontoxic concentrations in a fuel cell system in order for the fuel cell to operate efficiently.

Response to Arguments

5. Applicant's arguments filed April 15, 2005 have been fully considered but they are not persuasive. Applicant argues that Kenji "does not drain condensed water *stored* inside the reformer, rather drains condensed water outside the reformer. However, the combination of Kenji and Benson, which teaches a water-collecting portion formed by a plurality of sloped portions wherein a drain is connected to the water-collecting portion, will enhance drainage. Applicant argues that Benson "fails to teach or suggest a water-collecting portion." However, Benson was applied to show that structures with sloped

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sides are well known in order to efficiently drain from one structure into another. Borup was applied to teach that a carbon monoxide remover is advantageous to a fuel cell system, in order to prevent poisoning of the anode catalyst.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Angela J. Martin whose telephone number is 571-272-

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1288. The examiner can normally be reached on Monday-Friday from 9:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AJM



PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER